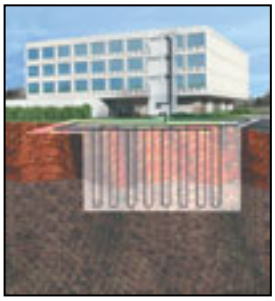
Yosemite National Park

National Park Service
U.S. Department of the Interior

Curry Village Employee Housing Ground Source Heat Pump System

How does a ground source heat pump (GSHP) work?



The new Curry Village employee housing area, currently under construction will incorporate an innovative heating and cooling system- - a ground source heat pump. At the cutting edge, this type of system harvests heat directly from the earth and is thought to provide a much more favorable source for heating and cooling than the constantly varying ambient air temperature, which other types of heat pumps rely on.

In winter, warmth is drawn from the earth through a series of pipes, called a loop, installed beneath the ground. A water solution circulating through this piping loop carries the earth's natural warmth to a heat pump inside the building. In the summer, the process is reveresed; heat is extracted from air inside the builing and transferred to the ground by way of the ground loop piping.

How does a GSHP system compare to other air-conditioning systems?

The Environmental Protection Agency (EPA) has found that GSHP systems are the most energy- efficient, environmentally clean, and cost- effective space- conditioning systems available. The EPA also found that these heat pump systems offer the lowest carbon dioxide emissions and lowest overall environmental cost of all the residential space- conditioning technologies readily available today. The few emissions that are released occur at power plants, where they can be more carefully monitored and controlled.

What are some of the benefits of this technology?

There are many advantages to using this ground source heat pump system as opposed to other alternatives. Some of them are:

- Uses parking lots as location for majority of piping (reducing overall area of site disturbance)
- Eliminates central plant building
- No mechanical equipment is located outdoors which enhances visual aesthetics
- No noise from outdoor mechanical equipment
- No air pollution emissions in Yosemite Valley
- High energy efficiency (reduced electricity usage)
- It is a closed system; therefore there is minimal chemical discharge from maintenance activities
- Treatment chemicals used are more benign due to lower operating temperatures
- Dramatic savings in operating costs for heating, cooling and hot water
- Excellent comfort and humidity control

Public Participation

Here are some ways to learn more and stay involved:

- Add your name to the park's mailing list (to address/fax/email below) and receive the *Planning Update* newsletter as well as other planning- related notices. You can also submit your email address to receive Yosemite National Park's periodic electronic newsletter.

  Mail: Superintendent
  Attn: Planning Mailing List
  P.O. Box 577
  Yosemite, CA 95389

  Fax: 209/379- 1294

  Email: YOSE_Planning@nps.gov

- The status of other Yosemite National Park improvement projects will be periodically updated on the park's planning web site. Visit online: *www.nps.gov/yose/planning*.